

## 03-310 Checking, replacement and tightening of big-end clamp bolts

### Dimensions of big-end clamp bolts

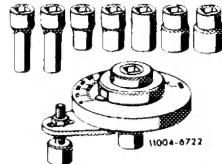
Part No.	Thread dia.	Waisted shank dia. c as new (illustration, job No. 1)	Min. waisted shank dia c
615 038 02 71	M 10 x 1	8.4-0.1	7.2
Insertion pressure for big-end clamp bolt			45000 N (4500 kp)

### Torque settings for big-end clamp nuts

Initial torque	40-50 Nm (4-5 kpm)
Final torquing angle	90-100°

### Special tool

Torquing angle set



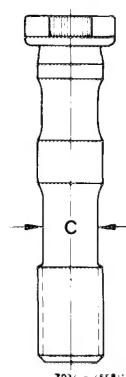
### Shop-made tool

Steel plate

see illustration, job No. 3

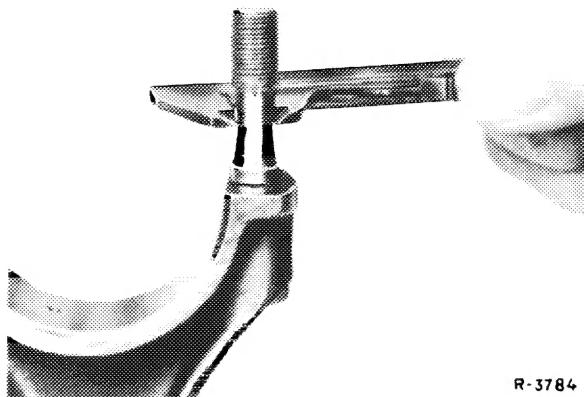
### Checking

- 1 Prior to putting back, check for minimum waisted shank diameter.



**Note:** Replace big-end clamp bolt if shank diameter has reached or dropped below min. 7.2 mm.

Big-end clamp bolts are not to be removed unless they are going to be replaced.

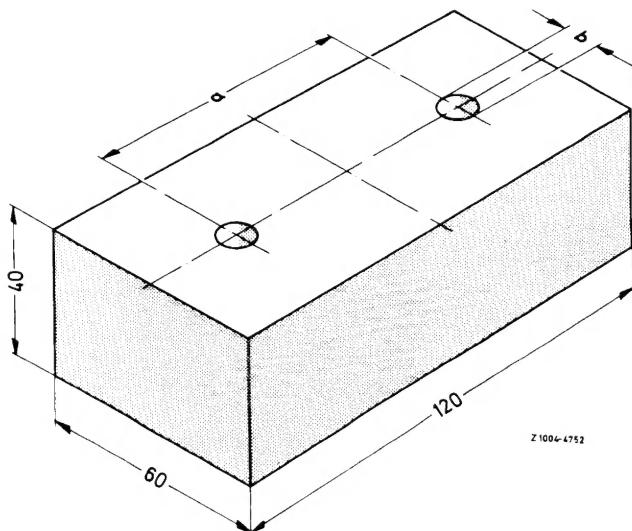


### Replacement

- 2 Remove big-end clamp bolts.
- 3 Force new clamp bolts into connecting rod, applying about 45,000 N (4500 kp); or drive home using hammer and drift.

Prior to driving or pressing clamp bolts into position, remember to place connecting rod on a ground steel plate.

Hole spacing a = 67 mm  
Bore b = 11 mm

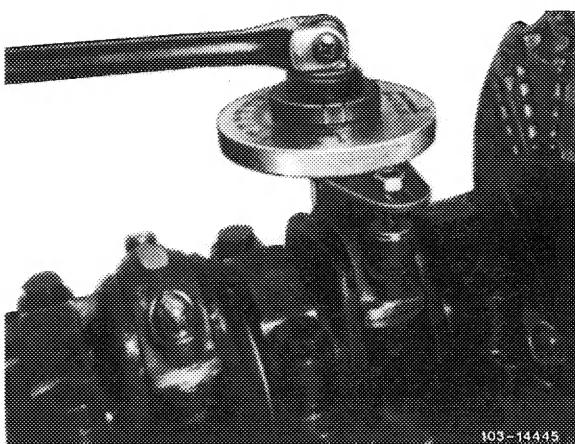


### Tightening

- 4 Oil nuts and thread contact surfaces.
- 5 Pretorque clamp nuts to 40–50 Nm (4–5 kpm) and then tighten by 90–100°.

#### Caution:

Clamp bolts which have been **hammered** home, must be pretorqued the **first time** to 50–60 Nm (5–6 kpm) and then tightened by 90–100°.



This rule must be observed under all circumstances because the clamp nuts may otherwise come loose.

**Note:** Should no torquing angle set be available, the clamp nuts may be tightened **in one go** by 90–100° using a normal socket and tommy bar. Be sure to estimate this angle as exactly as possible. **To eliminate torquing angle errors, be sure not to use a torque wrench for torquing nuts and bolts by degrees.**